CAREER & TECHNICAL EDUCATION CLASSES AT THE CCIC

CHERRY CREEK INNOVATION CAMPUS

APPLY TO CCIC

2020-2021 Course Catalog

www.cherrycreekschools.org/CCIC
Career & Technical Education (CTE) is a national program with courses teaching core academics, technical, and job-specific skills. CTE classes and programs like internships and apprenticeships, are designed to provide students with tools necessary to succeed in post-secondary education and career. All high schools in the Cherry Creek School District offer CTE courses.

Cherry Creek Innovation Campus (CCIC) is a stand-alone CTE facility which opened in August, 2019. Courses at the CCIC align with the industry standards for seven in-demand and growing career pathways. Many courses offer core academic credit in English, Math, or Science and/or college credit. Transportation to and from CCIC is provided at all home high schools.

Career Connections is a CTE program designed to guide students through career exploration by partnering with local business and industry. This program includes the Career Exploration class, Executive Internship and Apprenticeship programs. All programs help students develop necessary skills for transition to career and/or post-secondary education.

Concurrent Enrollment (CE) is an opportunity for students to earn high school and college credit simultaneously. Many course in the Cherry Creek School District (CCSD) offer concurrent enrollment credit through local colleges. As an additional benefit, CCSD will pay the tuition for students who apply for the College Opportunity Fund (COF). College credit can only be earned with a grade of ‘C’ or better.

Industry Certifications and Certificates are available in many CTE programs. An industry certification/certificate is recognized by business and industry at the local, state or national level. These certificates measure competency in an occupation, and they validate the knowledge base and skills that show mastery in a particular industry. Some certifications and certificates will be accepted for a student’s demonstration of learning according to Graduation Guidelines. See your counselor for more information.

Career & Technical Student Organizations (CTSO) are key components to strong CTE programs. These student run organizations develop business and industry-specific skills, procedures, and values that align with coursework, activities, and events in the classroom and greater community. Students also have the opportunity to demonstrate these acquired skills at regional, state and national competitions.
REGISTRATION PROCESS

CCIC COURSE REGISTRATION

To register for CCIC courses:

Step 1: ICAP Planning
Use your ICAP to help select a CTE pathway that fits your career and academic goals. Based on your career goals, you may choose to apply for a CTE course that is offered at the Cherry Creek Innovation Campus (CCIC), or through the District CTE program.

Step 2: Course Selection
Use the information in the course catalog to help plan your course selection. Make sure you meet the grade-level requirements and any prerequisites required.

Step 3: Counselor Input
After you’ve selected a CCIC or District CTE course that fits your ICAP, consult your counselor to ensure the courses will fit with your home high school schedule and will allow you to complete all courses necessary for graduation.

Step 4: Application
Once you have received counselor approval, complete the online application, opening on January 21, 2020. A link to the online application can be found on the CCIC website and in registration links on home high school websites. Applications must be submitted by Friday, March 6, 2020. In addition to the application, some courses may require a supplemental application and/or attendance at an informational meeting.

Step 5: Confirmation
After submitting an application, you will receive a confirmation email, as well as information regarding additional application requirements. Note that all application requirements must be completed in order to be considered for acceptance. Notification of acceptance into a CCIC or District CTE course will occur by email in late April/early May.

APPLICATION DUE: FRIDAY, MARCH 6, 2020
Transportation provided to and from each home high school.
Financial assistance available to students who qualify.

NOTIFICATION OF NONDISCRIMINATION
Cherry Creek School District No. 5 does not discriminate on the basis of race, color, national origin, sex, age, sexual orientation or disability in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of their operations. The Cherry Creek School District No. 5 Career and Technical Education Department does not discriminate in enrollment or access to any of the programs available. The lack of English language skills shall not be a barrier to admission or participation in the district’s activities and programs. The Cherry Creek School District also does not discriminate in its hiring or employment practices.

This notice is provided as required by Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, and the Americans with Disabilities Act of 1990. Questions, complaints, or requests for additional information regarding these laws may be forwarded to the designated compliance coordinator: Ms. Stephanie Davies, District Compliance Officer, Educational Services Center, 4700 S. Yosemite St., Greenwood Village, CO 80111, (720) 554-4471, or directly to the U.S. Department of Education, Office for Civil Rights, Region VIII, Federal Office Building, 1244 North Speer Blvd., Suite #310, Denver, CO 80204.
CCIC DISTRICT COURSE CATALOG

CORE CLASSES OFFERED AT CCIC

CCIC core content is integrated within our pathway curriculum and meets district core standards requirements for graduation.

**CP Innovator’s English A** - In this integrative English course, students demonstrate career and college readiness, developing leadership, reading, and writing skills that will make them successful in the post-secondary realm. Students in this course also participate in many collaborative settings where they will use rhetorical strategies to reach a decision with others who have diverse ideas. To be successful, students must contribute to conversations in professional manners. Students write compositions and responses in argumentative/persuasive form to further enhance knowledge of career-related issues and inquiry, inviting cultural communication and diversity into their writing and conversations. Finally, students will also conduct short, sustained research as well as complete an APA research paper.

**CP Innovator’s English B** - This course will provide the foundation for employment and prepare students for postsecondary success. It will also use an active learning approach in writing, reading, and communication processes to integrate topics into potential careers. Students will study rhetorical devices and their use in writing and speeches to inform or persuade an audience.

**CP Innovator’s Math Topics A** - This course will extend students’ proficiency in fundamental arithmetic topics to in-depth analysis of plane, solid, and coordinate geometry as they relate to both abstract mathematical concepts as well as real-world problem situations.

**CP Innovator’s Math Topics B** - This course will extend students’ proficiency in fundamental arithmetic topics to more advanced algebraic topics, including the application of trigonometric functions, standard deviation, matrix and vector analysis, logarithmic and exponential relationships, and linear systems.

**CP Innovator’s Math Topics C** - This course will extend students’ proficiency in the use of data structures to organize large sets of data, the development and implementation of algorithms to process data and discover new information, and the analysis of potential solutions.

**CP Innovator’s Math Topics D** – Innovator’s Math D will expand on students’ proficiency in number theory and discrete mathematics topics as it applies to technology. Topics may include number systems, basic combinatorics, modular arithmetic, and prime numbers. This course can be repeated for credit.

**Innovator’s Life Science** - Students will use a full range of science and engineering practices to make sense of natural phenomena and solve problems that require an understanding of how individual organisms are configured and how these structures function to support life, growth, behavior and reproduction.

**Innovator’s Physical Science** - Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding structure, properties and interactions of matter.

* All CCIC core classes are NCAA approved.
# Manufacturing Fundamentals

**Grades:** 10th - 12th Grade  
**Length:** 1 Semester  
**Credits:** .5 CTE / .5 MTH B  
**Est. Fees:** $140

<table>
<thead>
<tr>
<th>Prerequisites:</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concurrent Enrollment:</td>
<td>N/A</td>
</tr>
<tr>
<td>Certifications:</td>
<td>National Institute of Metalworking Skills (NIMS) upon completion of pathway</td>
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</tbody>
</table>
| **Course Description:** | This course covers essential principles behind manufacturing processes and provides a working knowledge of a broad range of manufacturing procedures. Manufacturing Fundamentals includes instruction on hand tools, portable electric power tools, and the introduction to various computer-controlled production machines, including water jet cutters, routers, and plasma cutters. Brief experiences with plastic injection molding, vacuum-forming equipment, and composites production are also included. Featured equipment includes HAAS Automation, HyperTherm, Starrett, Plural Additive Manufacturing, Instron, Formech, Dewalt and JET.  
*Suggested prerequisites include CAD (Computer Aided Design) or CAD for Fabrication.* |
## CNC MACHINING

<table>
<thead>
<tr>
<th>GRADES: 10-12</th>
<th>LENGTH: 1 SEMESTER</th>
<th>CREDITS: .5 CTE/ .5 MTH B</th>
<th>EST. FEES: $140</th>
</tr>
</thead>
</table>

**Prerequisites:** N/A  
**Concurrent Enrollment:** N/A  
**Certifications:** National Institute of Metalworking Skills (NIMS) upon completion of pathway

**Course Description:** Computer Numeric Control (CNC) Machining provides students opportunities to work with various 3 Axis CNC milling machines and a CNC lathe. Students learn how to utilize SolidWorks 3D modeling software and SolidWorksCAM to transform a virtual model into a physical product. Students also learn how to use a HAAS and Tormach manufacturing equipment, Instron precision testing equipment, and Starrett precision measurement tools. Additional units of study introduce students to industrial grade, multi-material 3D printing, precision measurement, and quality control. Featured equipment includes HAAS AutoMation, HyperTherm, Starrett, Plural Additive Manufacturing, Instron, Formech, Dewalt and JET.

*Suggested prerequisites include CAD (Computer Aided Design) or CAD for Fabrication.*

## MANUFACTURING FUNDAMENTALS II

<table>
<thead>
<tr>
<th>GRADES: 11-12</th>
<th>LENGTH: 1 YEAR</th>
<th>CREDITS: 1.0 CTE/ 1.0 MTH B</th>
<th>EST. FEES: $110</th>
</tr>
</thead>
</table>

**Prerequisites:** Manufacturing Fundamentals and CNC Machining  
**Concurrent Enrollment:** N/A  
**Certifications:** National Institute of Metalworking Skills (NIMS)

**Course Description:** Fundamentals of Manufacturing II is a full year course that gives students a chance to expand on what was introduced in Fundamentals of Manufacturing I. This course concentrates on mass production and industry-level part-creation using CNC routers, plasma cutters and water jet cutters. Students also have access to injection molding, vacuum forming, composite materials and traditional tooling and hand operations. Students work individually as well as in teams to create real world industry design parts. NIMS certification preparation is an additional focus of the class.

## CNC MACHINING II

<table>
<thead>
<tr>
<th>GRADES: 11-12</th>
<th>LENGTH: 1 YEAR</th>
<th>CREDITS: 1.0 CTE/ 1.0 MTH B</th>
<th>EST. FEES: $110</th>
</tr>
</thead>
</table>

**Prerequisites:** Manufacturing Fundamentals and CNC Machining  
**Concurrent Enrollment:** N/A  
**Certifications:** National Institute of Metalworking Skills (NIMS)

**Course Description:** This course covers CAD/CAM systems, geometric modeling, process planning, tool path generation. Course content includes programming and production of complex parts. Projects focus on solid modeling for design and manufacturing applications as well as the use of commercial CAD/CAM software for automating the production cycle. Special content addresses CNC mill setups and operations not covered in the basic CNC Machining. NIMS certification preparation is an additional focus of the class.
### PROJECT MANAGEMENT FOR ENTREPRENEURS I

**Grades:** 10-12  
**Length:** 1 Semester  
**Credits:** .5 CTE/.5 ENG A  
**Est. Fees:** $80

**Prerequisites:** N/A

**Concurrent Enrollment:** Arapahoe Community College (ENP 105, MAN 241)

**Certifications:** Certified Associate Project Management (CAPM) upon completion of PM4EI and PM4EII (may be earned in grade 12 only)

**Course Description:** By definition, project management is a temporary endeavor undertaken to create a unique product, service, or result. Project Management for Entrepreneurs I explores the fundamentals of project management with an entrepreneurial slant. Business and marketing concepts, including organizational communication, human resources management, entrepreneurship, accounting, finance, and leadership are explored. The course investigates the concepts and applicability of project management within organizations by examining the unique nature of projects, the need for integrated decision-making, and the stages of the project life cycle. The creation of a unique product, service, or idea that solves a problem in your community is required. This process will include collaboration on a sales pitch and business plan adopting the Business Canvas Model.

*Suggested Prerequisites include Introductory Business and/or Marketing Course.*

### PROJECT MANAGEMENT FOR ENTREPRENEURS II

**Grades:** 10-12  
**Length:** 1 Semester  
**Credits:** .5 CTE/.5 ENG B  
**Est. Fees:** $80

**Prerequisites:** Successful Completion of Project Management for Entrepreneurs I

**Concurrent Enrollment:** Arapahoe Community College (MAR 106, ENP 205)

**Certifications:** Certified Associate Project Management (CAPM) upon completion of PM4EI and PM4EII (may be earned in grade 12 only)

**Course Description:** Project management is a rapidly growing profession. Between now and the year 2020, 1.57 million new project management jobs are projected to be created each year. Project Management for Entrepreneurs II presents a series of marketing challenges to teams of student project managers with the winners announced at the end of the semester. This course continues to prepare students in understanding how project management skills can assist in promoting an entrepreneurial venture. Students gain insights essential for using digital media to market their ideas, using innovative and financially responsible marketing strategies that are both traditional and non-traditional in nature.
PROJECT MANAGEMENT FOR ENTREPRENEURS III

<table>
<thead>
<tr>
<th>GRADES: 11-12</th>
<th>LENGTH: 1 SEMESTER</th>
<th>CREDITS: .5 CTE/ .5 ENG B</th>
<th>EST. FEES: $80</th>
</tr>
</thead>
</table>

**Prerequisites:** Project Management for Entrepreneurs I & II

**Concurrent Enrollment:** Arapahoe Community College (MAR 160, MAN 243)

**Certifications:** Certified Associate Project Management (CAPM) upon completion of PM4EI, PM4EII, & PM4EIII (may be earned in grade 12 only)

**Course Description:** This course enables students to understand how project management skills are necessary to build customer relations and service practice. Enrolled students learn how to problem solve and understand the importance of communicating with customers. Specific emphasis is given to managing customer expectations by building positive customer rapport and creating outcomes related to industry. In addition, this course examines Customer Relationship Management (CRM) and its application in marketing, sales, and service industry.

CTE CAPSTONE

<table>
<thead>
<tr>
<th>GRADES: 11-12</th>
<th>LENGTH: 1 SEMESTER</th>
<th>CREDITS: .5 CTE/ .5 ENG B</th>
<th>EST. FEES: $100</th>
</tr>
</thead>
</table>

**Prerequisites:** Any CCIC student completing a pathway at the CCIC is eligible to take the CTE Capstone course.

*A teacher recommendation may be required.*

**Concurrent Enrollment:** Arapahoe Community College (MAN 224, MAN 128)

**Certifications:** Certified Associate Project Management (CAPM) upon completion of PM4EI and PM4EII (may be earned in grade 12 only)

**Course Description:** While working in teams, students who have completed any CCIC pathway will solve real world problems faced by our business partners who will act as project sponsors. The teams will then initiate, plan, execute, monitor and control, and close the project by presenting the sponsor with the deliverable and/or solution. All team members must be willing to improve their skills in collaboration, leadership, time management, teamwork, commitment, and perseverance.
**INTRODUCTION TO HEALTH & WELLNESS**

**Grades:** 10-12  
**Length:** 1 semester  
**Credits:** .5 CTE / .5 Life Sci  
**Estimated Fees:** $85

**Prerequisites:** N/A  
**Concurrent Enrollment:** Arapahoe Community College (HPR 123, HPR 124, Medical Terminology)  
**Certifications:** American Red Cross CPR/FAS/AED  

**Course Description:** An exploration of careers in healthcare, along with necessary leadership and employability skills. Students will learn basic human anatomy, physiology, medical terminology, Maslow’s Hierarchy of Needs, CPR/First Aid, and Safety/AED certification.

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**CERTIFIED NURSE AIDE**

**Grades:** 11-12  
**Length:** 1 semester  
**Credits:** .5 CTE / .5 Life Sci  
**Estimated Fees:** $165

**Prerequisites:** N/A  
**Concurrent Enrollment:** N/A  
**Certifications:** Certified Nurse Aide  

**Course Description:** Students learn effective skills to interact competently with clients, including sensitivity to clients’ emotional, social and mental health needs, as well as appropriate documentation of clients’ health assessment, physical condition, and overall well-being. Skills must meet requirements of the Colorado State Board of Nursing. Students will be required to pass a background check and drug screening.

*Suggested prerequisite: Introduction to Health & Wellness.*
### BEHAVIOR HEALTH TECHNICIAN

**GRADES: 11-12**  |  **LENGTH: 1 YEAR**  |  **CREDITS: 1.0 CTE/ 1.0 ENG A**  |  **EST. FEES: $118**

**Prerequisites:** N/A  
**Concurrent Enrollment:** Pueblo Community College (PTE 110, PTE 120)  
**Certifications:** Behavioral Health Technician certificate of completion upon completion of course  
**Course Description:** Explores basic principles of behavioral health and wellness care in a behavioral healthcare setting. This course develops interpersonal and technical skills while working with clients in psychiatric care settings.  
*Suggested prerequisite: Introduction to Health & Wellness*

### INTRODUCTION TO PHYSICAL AND OCCUPATIONAL THERAPY

**GRADES: 11-12**  |  **LENGTH: 1 SEMESTER**  |  **CREDITS: .5 CTE/ .5 LIFE SCI**  |  **EST. FEES: $70**

**Prerequisites:** N/A  
**Concurrent Enrollment:** Arapahoe Community College (PTA 115)  
**Certifications:** N/A  
**Course Description:** Physical and Occupational Therapists help people who are injured, ill, or disabled regain skills needed for the activities of daily life. Physical and Occupational Therapy Assistants set up treatment plans and work under the Physical or Occupational Therapist. Students learn how to prepare materials and treatment rooms, assemble equipment, follow HIPAA guidelines, communicate in the workplace, and perform clerical tasks necessary for physical and occupational therapy aides.  
*Suggested prerequisite: Introduction to Health & Wellness*

### PHARMACY TECHNICIAN

**GRADES: 12**  |  **LENGTH: 1 YEAR**  |  **CREDITS: 1.0 CTE/ 1.0 LIFE SCI**  |  **EST. FEES: $154**

**Prerequisites:** N/A  
**Concurrent Enrollment:** N/A  
**Certifications:** Pharmacy Technician  
**Course Description:** This course introduces students to the role and functions of a Pharmacy Technician. The content and skills covered are ethical conduct, communication skills, patient care, proper medication handling, medication ordering, patient confidentiality, regulatory compliance, basic anatomy, physiology, and medical terminology. Students will be required to pass a background check and drug screening.  
*Suggested prerequisite: Introduction to Health & Wellness*
**Lodging & Resort Management**

Grades: 11-12  
Length: 1 year  
Credits: 1.0 CTE / 1.0 ENG B  
Est. Fees: $165

**Prerequisites:** N/A

**Dual Enrollment:** Metro State University of Denver (HLDR 1000 & HLDR 1500), $50 additional fee per credit, 6 credits

**Certifications:** GOLD Certified Guest Service Professional, ServSafe Food Handler, Workforce Readiness Certificate, and CHTMP (Certified Hospitality & Tourism Management Professional). Includes a 100 hour internship.

**Course Topics:** Careers in hospitality, resort operations, sales, marketing, soft skills, communication, guest experience cycle, food and beverage services, hospitality leadership skills, communication, banquets and catered events, managing business operations, safety and security, sales, marketing, and human resources.

*Suggested Prerequisites: Intro to Business, Marketing, or Leadership*
### PROSTART I / PROSTART II

<table>
<thead>
<tr>
<th>Grades: 10-12</th>
<th>Length: 1 Year</th>
<th>Credits: 2.0 CTE</th>
<th>Est. Fees: $175</th>
</tr>
</thead>
</table>

**Prerequisites:** N/A

*GHS/SHHS students only - one year of ProStart from home school required*

**Dual Enrollment:** ProStart I - Metro State University of Denver (RST 1200); ProStart II - Metro State University of Denver (RST 1550), $50 additional fee per Metro State University credit, 6 credits

**Certifications:** ServSafe Food Handler, Workforce Readiness Certificate, Gold Certified Guest Service Professional, ProStart National Certificate of Achievement

**Course Topics:** Careers in the foodservice industry, food safety & sanitation, commercial equipment, baking, cooking methods, marketing and management fundamentals, cost control, nutrition, meats, pasta, desserts, and sustainability in the industry. Students will also have the chance to work in the CCI Café alongside the ProStart Youth Apprenticeship students.

*Suggested Prerequisites: Foods & Nutrition or Gourmet Foods*  

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### PROSTART YOUTH APPRENTICESHIP

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<tr>
<th>Grades: 11-12</th>
<th>Length: 1 Year</th>
<th>Credits: 1.0 CTE/1.0 ENG B</th>
<th>Est. Fees: $175</th>
</tr>
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</table>

**Prerequisites:** ProStart 1 and/or ProStart 2

**Certifications:** ServSafe Manager, Workforce Readiness Certificate, Gold Certified Guest Service Professional, ProStart National Certificate of Achievement, ServSuccess Certified Restaurant Professional

**Course Topics:** Expansion of topics learned in ProStart I/ProStart II with a focus on food production, food safety and sanitation, commercial equipment, baking, cooking methods, cost control, and more. Hours are earned through operating the CCI Café business on campus as well as jobs in the industry.

*Suggested Prerequisites: Foods & Nutrition/Gourmet Foods/ Catering, Intro to Business/Marketing*
CONSTRUCTION I

<table>
<thead>
<tr>
<th>GRADES: 10-12</th>
<th>LENGTH: 1 YEAR</th>
<th>CREDITS: 1.0 CTE/ 1.0 MTH A</th>
<th>EST FEES: $90</th>
</tr>
</thead>
</table>

Prerequisites: Algebra I

Concurrent Enrollment: N/A

Certifications: OSHA-10 Construction, HBI PACT (Pre Apprenticeship Certificate Training), NCCER (National Center for Construction Education and Research)

Course Topics: Safety, construction math, hand and power tools, blueprints/drafting, electrical wiring, masonry, plumbing, carpentry, HVAC, drywall, foundations, footings, floors, roofing, stairs, windows, doors, and employability.

CONSTRUCTION II

<table>
<thead>
<tr>
<th>GRADES: 11-12</th>
<th>LENGTH: 1 YEAR</th>
<th>CREDITS: 1.0 CTE/ 1.0 MTH A</th>
<th>EST FEES: $90</th>
</tr>
</thead>
</table>

Prerequisites: Algebra I, Construction I

Concurrent Enrollment: N/A

Certifications: National Center for Construction Education and Research (NCCER) Carpentry, Electrical, Plumbing Home Builders Institute Pre Apprenticeship Construction Training (PACT) Carpentry, Electrical, Plumbing

Course Description: Students will have more complicated practical experience with Carpentry, Electrical and Plumbing. Working in conjunction with the Associated General Contractors of Denver, students focus on various specifics of modular home building. The home’s plumbing will include wastewater, domestic supply and fixture installation while the electrical aspects will focus on all facets of residential wiring, including rough wiring, installation of electrical fixtures and finish wiring. Carpentry for this year will include a more comprehensive understanding of framing, drywall, exterior siding, roofing, insulation, windows, doors, trim and cabinet installation.
INTRODUCTION TO PROGRAMMING

<table>
<thead>
<tr>
<th>GRADES: 10-12</th>
<th>LENGTH: 1 SEMESTER</th>
<th>CREDITS: 1.0 CTE</th>
<th>EST. FEES: $30</th>
</tr>
</thead>
</table>

**Prerequisites:** Algebra I (B or better)

**Concurrent Enrollment:** N/A

**Certifications:** N/A

**Course Topics:** Variables, operators, conditionals, iteration, arrays, classes & objects, inheritance, algorithms.

*CHHS, CTHS, EHS, GHS, OHS students interested in IT/STEAM pathway must take an introductory programming course at home high school.

DATA SCIENCE I: FOUNDATIONS

<table>
<thead>
<tr>
<th>GRADES: 10-12</th>
<th>LENGTH: 1 SEMESTER</th>
<th>CREDITS: .5 CTE/.5 MTH C</th>
<th>EST. FEES: $30</th>
</tr>
</thead>
</table>

**Prerequisites:** One of the following: Introduction to Programming, Introduction to Computer Science, AP Computer Science Principles, or AP Computer Science A

**Concurrent Enrollment:** N/A

**Certifications:** N/A

**Course Topics:** Collecting, cleaning, manipulating, and visualizing data with Python, R, and their appropriate libraries; data analysis tools, statistics, and appropriate knowledge of business (or related) operations for decision making with data.
DATA SCIENCE II: MACHINE LEARNING

GRADES: 10-12  LENGTH: 1 SEMESTER  CREDITS: .5 CTE/.5 MTH C  EST. FEES: $30

Prerequisites: Data Science I: Foundations
Concurrent Enrollment: N/A
Certifications: N/A

Course Topics: This course provides a broad introduction to machine learning, data mining, and statistical pattern recognition. Topics include supervised learning, unsupervised learning, and best practices in machine learning.

CYBERSECURITY I: COMPUTER SYSTEMS

GRADES: 10-12  LENGTH: 1 SEMESTER  CREDITS: 1.0 CTE  EST. FEES: $50

Prerequisites: One of the following: Introduction to Programming, Introduction to Computer Science, AP Computer Science Principles, or AP Computer Science A
Concurrent Enrollment: N/A
Certifications: CompTIA A+, TestOut PC Pro

Course Topics: Computer hardware (RAM, CPU, peripherals, etc.), operating systems (Windows, MacOS, Linux), software applications, computer networks and their security implications.

CYBERSECURITY II: NETWORKS & SECURITY

GRADES: 10-12  LENGTH: 1 SEMESTER  CREDITS: .5 CTE/.5 MTH D  EST. FEES: $50

Prerequisites: Cybersecurity I: Computer Systems
Concurrent Enrollment: N/A
Certifications: CompTIA Network+, TestOut Network Pro, CompTIA Security+, TestOut Security Pro

Course Topics: Design, implement, and troubleshoot issues in wired and wireless networks, security as applied to business operations, and basic cryptography methods.

CYBERSECURITY III: ETHICAL HACKING

GRADES: 10-12  LENGTH: 1 SEMESTER  CREDITS: 1.0 CTE  EST. FEES: $30

Prerequisites: Cybersecurity I: Computer Systems and Cybersecurity II: Networks & Security
Concurrent Enrollment: N/A
Certifications: TBD

Course Topics: In this course, students will learn to evaluate the security posture of target systems by exploiting their weaknesses and vulnerabilities in an ethical, lawful, and legitimate manner. Students will utilize their findings to make recommendations for strengthening the security of these target systems. This course will be based on the industry-recognized Certified Ethical Hacker (Practical) certification and will prepare students for entry-level jobs in penetration testing and cybersecurity.
STEAM PATHWAY

*Computer Aided Design I
10th-12th grade
Learn about creating CAD files to create physical objects.

Drone Pilot
10th-12th grade
Learn all concepts and skill required for FAA Part 107 Drone Pilot Certification.

Product Design I
10th-12th grade
Bring ideas from initial concept to tangible reality using design thinking and processes.

Advanced Robotics & Automated Systems
10th-12th grade
Design and program a robot to navigate land, sea, and space.

Virtual Reality
10th-12th grade
Develop virtual reality applications for both consumer and enterprise solutions.

PRODUCT DESIGN II
10th-12th grade
Students will solve design problems by using the latest applications for direct digital fabrication.

COMPUTER AIDED DESIGN I (formerly CAD for Fabrication)

GRADERS: 10-12 | LENGTH: 1 SEMESTER | CREDITS: .5 CTE/.5 MTH B | EST. FEES: $100

Prerequisites: N/A
Concurrent Enrollment: N/A
Certifications: SOLIDWORKS Certified Associate - CSWA Mechanical Design (if not taken at home high school), SOLIDWORKS Certified Associate - CSWA-AM Additive Manufacturing (if not taken at home high school)
Course Topics: This course is an entry level design class developed to teach students how to use various drawing instruments to read and create technical drawings and 3D parts. This course is designed for students interested in exploring careers related to technical careers such as engineering and product design. Students will demonstrate their new skills through hands on projects and display how various software is used in industry. The course will culminate with students taking the Certified SolidWorks Associate exam, an industry level certification exam used to demonstrate a student’s level of expertise using SolidWorks.

DRONE PILOT

GRADERS: 10-12 | LENGTH: 1 SEMESTER | CREDITS: .5 CTE/.5 MTH B | EST. FEES: $100

Prerequisites: N/A
Concurrent Enrollment: N/A
Certifications: FAA Small UAS Rule (Part 107)
Course Topics: Concepts in this course include drone components, drone operation, pilot skills, careers related to drones, and the regulations governing drone operation. At the conclusion of the course, students will be prepared to take the FAA Part 107 Drone Pilot Certification Exam.

PRODUCT DESIGN I

GRADERS: 10-12 | LENGTH: 1 SEMESTER | CREDITS: .5 CTE/.5 PHY SCI | EST. FEES: $100

Prerequisites: N/A
Concurrent Enrollment: N/A
Certifications: Society of Manufacturing Engineers ADDITIVE MANUFACTURING FUNDAMENTALS, SOLIDWORKS Certified Associate - CSWA Mechanical Design (if not taken at home high school)
Course Topics: Students that are interested in careers involving design, engineering and innovation. Student will utilize design thinking and the design process to research, conceptualize, design, prototype, and evaluate physical products. Students will develop their digital fabrication skills utilizing production machines. Students will design and create both as an individual and in collaborative groups, including working on/with projects directly from industry.
## PRODUCT DESIGN II

**Grades:** 10-12  
**Length:** 1 Semester  
**Credits:** 0.5 CTE/0.5 PHY SCI  
**Est. Fees:** $100

**Prerequisites:** Computer Aided Design or similar Design course

**Concurrent Enrollment:** N/A

**Certifications:** SOLIDWORKS Certified Associate - CSWA-AM Additive Manufacturing (if not taken at home high school), SOLIDWORKS Certified Expert - CSWE Mechanical Design (if not taken at home high school), SOLIDWORKS Certified Professional - CSWP Mechanical Design (if not taken at home high school)

**Course Topics:** Students that are interested in careers involving design, engineering, and innovation. Students will explore and use the latest applications of direct digital fabrication. Emphasis will be places on practical experience in utilizing departmental equipment to produce digital 3D files and output them to appropriate direct digital fabrication equipment. Students will solve design problems by applying knowledge of material properties, ergonomics, form vs. function, additive manufacturing (3D printing), principles of design, and elements of art. Students will design and create both as an individual and in collaborative groups, including working on/with projects directly from industry.

## ADVANCED ROBOTICS & AUTOMATION SYSTEMS

**Grades:** 10-12  
**Length:** 1 Semester  
**Credits:** 0.5 CTE/0.5 MTH B  
**Est. Fees:** $100

**Prerequisites:** Introductory Robotics course or equivalent

**Concurrent Enrollment:** N/A

**Certifications:** N/A

**Course Topics:** Introduces industrial robotics as well as a survey of the technologies and equipment used in manufacturing automation and process control. Includes axis configurations, work envelopes, programming, troubleshooting, and maintenance. Incorporates a survey of automation topics including history, computer and hardwired controls, sensors and transducers, motors and actuators, fluid power, and PLC’s.

## VIRTUAL REALITY

**Grades:** 10-12  
**Length:** 1 Semester  
**Credits:** 0.5 CTE/0.5 MTH B  
**Est. Fees:** $100

**Prerequisites:** N/A

**Concurrent Enrollment:** N/A

**Certifications:** Unity Certified Associate, Unity Certified User: 3D Artist, Unity Certified User: Programmer

**Course Topics:** Students learn to develop VR applications in Unity, design Unity assets, create VR environments and animate with C# scripts. Students explore VR hardware and software. Students also identify industries where VR is a disruptive technology.
MAINTENANCE AND LIGHT REPAIR (MLR) I

**GRADES: 10-12**  **LENGTH: 1 YEAR**  **CREDITS: 1.0 CTE/ 1.0 PHY SCI**  **EST FEES: $95**

**Concurrent Enrollment:** Arapahoe Community College (ASE 101, 103 & 122)

**Certifications:** Snap-on Certifications (Multimeter, Torque, Precision Measurement, Scanner and Diagnostics), ASE Student Automobile Certifications (Brake Systems, Suspension & Steering Systems, Electrical/Electronic Systems, and Engine Performance)

**Course Topics:** Automobile service and repair, shop safety, engine repair, automatic transmissions and transaxles, manual drivetrain and axles, suspension and steering, brakes, electrical and electronic systems, heating and air conditioning, and engine performance.

MAINTENANCE AND LIGHT REPAIR (MLR) II

**GRADES: 11-12**  **LENGTH: 1 YEAR**  **CREDITS: 1.0 CTE/ 1.0 PHY SCI**  **EST. FEES: $95**

**Prerequisites:** MLR I

**Concurrent Enrollment:** Arapahoe Community College (ASE 250, 264)

**Certifications:** Snap-on Certifications (Wheel Service & Alignment, Advanced Scanner Diagnostics, Pro-Cut on-car Rotor Machining, Battery Starting and Charging), ASE Student Automobile Certifications (Brake Systems, Suspension & Steering Systems, Electrical/Electronic Systems, and Engine Performance)

**Course Topics:** Advanced concepts in automobile service and repair, shop safety, engine repair, automatic transmissions and transaxles, manual drivetrain and axles, suspension and steering, brakes, electrical and electronic systems, heating and air conditioning, and engine performance.

AUTO SERVICE TECHNOLOGY MLR III HIGH PERFORMANCE

**GRADES: 12**  **LENGTH: 1 YEAR**  **CREDITS: 2.0 CTE**  **EST. FEES: $95**

**Prerequisites:** Maintenance and Light Repair (MLR) I and II or equivalent coursework

**Concurrent Enrollment:** N/A

**Certifications:** Continuation of Snap-on Certifications (Wheel Service & Alignment, Advanced Scanner Diagnostics, Pro-Cut on-car Rotor Machining, Battery Starting and Charging), ASE Student Automobile Certifications (Brake Systems, Suspension & Steering Systems, Electrical/Electronic Systems, and Engine performance)

**Course Topics:** Advanced diagnostic techniques including high performance concepts, Skills USA, apprenticeship preparation.
## ACCELERATED GENERAL AIRCRAFT MAINTENANCE I & II

<table>
<thead>
<tr>
<th>GRADES: 11-12</th>
<th>LENGTH: 1 Year (meets daily)</th>
<th>CREDITS: 2.0 CTE/ 1.0 MTH B/ 1.0 PHY SCI</th>
<th>EST. FEES: $150</th>
</tr>
</thead>
</table>

**Prerequisites:** Completion of CCIC Math Assessment  
**Concurrent Enrollment:** N/A  
**Certifications:** Snap-on Multimeter  
**Course Description:** This course covers basic subjects, such as mathematics for aviation, basic physics for aviation, and basic electricity. In addition, this course will provide a foundation for further studies in the aviation maintenance pathway including the FAA coursework and required hours for General Aviation Mechanics.

## AIRFRAME I (SUMMER)

<table>
<thead>
<tr>
<th>GRADES: 11-12</th>
<th>LENGTH: 7.5 hrs/day, 20 days</th>
<th>CREDITS: 1.0 CTE</th>
<th>EST. FEES: $100</th>
</tr>
</thead>
</table>

**Prerequisites:** General Aircraft Maintenance I & II  
**Concurrent Enrollment:** N/A  
**Certification:** Snap-on Torque and Snap-on Precision Measurement  
**Course Topics:** This course builds on General Aircraft Maintenance I & II. This course will cover wood structures, aircraft coverings, non-metallic structures, and aircraft finishes. The FAA requires 750 total hours for Airframe Maintenance. This summer session is 150 of those hours.

## ACCELERATED AIRFRAME II & III

<table>
<thead>
<tr>
<th>GRADE: 11-12</th>
<th>LENGTH: 1 Year (meets daily)</th>
<th>CREDITS: 3.0 CTE/ 1.0 MTH B</th>
<th>EST.FEES: $150</th>
</tr>
</thead>
</table>

**Prerequisites:** General Aircraft Maintenance I & II, Airframe I  
**Concurrent Enrollment:** N/A  
**Certifications:** N/A  
**Course Topics:** In Airframe II & III, students will continue their study of Airframe Maintenance. Topics include aircraft sheet metal, electrical systems, hydraulic and pneumatic power systems, fuel systems, water and waste systems, and landing systems. The FAA requires 750 total hours for Airframe Maintenance. This year-long course provides 492 of those hours.
TWO YEAR ACCELERATED AVIATION MAINTENANCE PATHWAY

AIRFRAME IV (SUMMER)

- **GRADRES:** 12
- **LENGTH:** 7.5 hrs/day, 20 days
- **CREDITS:** 0.5 CTE/0.5 PHY SCI
- **EST. FEES:** $100

**Prerequisites:** General Aircraft Maintenance I & II, Airframe I, II, & III

**Concurrent Enrollment:** N/A

**Certifications:** N/A

**Course Topics:** This course is the conclusion of Airframe Maintenance and the remaining 750 hours required by the FAA prior to testing. Topics for the class include instrument systems, communication and navigation systems, and inspection processes.

THREE YEAR AVIATION MAINTENANCE PATHWAY

**YEAR 1**

- **General Aircraft Maintenance I**
  - (Half-Day, Every Other Day, 1Yr)
  - 10th-12th grade
  - This class is the foundation of the Aviation Maintenance program.

**YEAR 2**

- **General Aircraft Maintenance II**
  - (Half-Day, Every Other Day, 1Yr)
  - 11th-12th grade
  - This course is a continuation of General Aircraft Maintenance I.

**SUMMER**

- **Airframe I**
  - 11th-12th grade
  - Introduction to Airframe Studies.

**YEAR 3**

- **ACCELERATED Airframe II**
  - (Half day, every day, Semester 1)
  - 11th-12th grade
  - Continuation of Aircraft structures and systems.

- **ACCELERATED Airframe III**
  - (Half day, every day, Semester 2)
  - 11th-12th grade
  - Continuation of Aircraft structures and systems.

**SUMMER**

- **Airframe IV**
  - 12th grade
  - Completion of the FAA required hours for Airframe education and exam preparation.

GENERAL AIRCRAFT MAINTENANCE I

- **GRADRES:** 10-12
- **LENGTH:** 1 Year
- **CREDITS:** 1.0 CTE/1.0 MTH B
- **EST. FEES:** $75

**Prerequisites:** Completion of CCIC Math Assessment

**Concurrent Enrollment:** N/A

**Certifications:** Snap-on Multimeter

**Course Topics:** This course is an introduction to foundational subjects, such as mathematics for aviation, physics for aviation, and basic electricity. In addition, this course will provide for further studies in the aviation maintenance pathway including the FAA coursework and required hours for General Aviation Mechanics.

GENERAL AIRCRAFT MAINTENANCE II

- **GRADRES:** 11-12
- **LENGTH:** 1 Year
- **CREDITS:** 1.0 CTE/1.0 PHY SCI
- **EST. FEES:** $75

**Prerequisites:** General Aircraft Maintenance I

**Concurrent Enrollment:** N/A

**Certifications:** Snap-on Multimeter

**Course Topics:** This course builds on the subjects addressed in General Aircraft Maintenance I and completes the 400 hours necessary to begin Airframe. The class prepares students for the General Aircraft Maintenance portion of the FAA Part 147 Aviation Mechanics exam.
## THREE YEAR AVIATION MAINTENANCE PATHWAY

### AIRFRAME I (SUMMER)

<table>
<thead>
<tr>
<th>GRADES: 11-12</th>
<th>LENGTH: 7.5 hrs/day, 20 days</th>
<th>CREDITS: 1.0 CTE</th>
<th>EST. FEES: $100</th>
</tr>
</thead>
</table>

- **Prerequisites:** General Aircraft Maintenance I & II
- **Concurrent Enrollment:** N/A
- **Certification:** Snap-on Torque and Snap-on Precision Measurement
- **Course Topics:** This course builds on General Aircraft Maintenance I & II. This course will cover wood structures, aircraft coverings, non-metallic structures, and aircraft finishes. The FAA requires 750 total hours for Airframe Maintenance. This summer session is 150 of those hours.

### ACCELERATED AIRFRAME II & III

<table>
<thead>
<tr>
<th>GRADE: 11-12</th>
<th>LENGTH: 1 Year (meets daily)</th>
<th>CREDITS: 3.0 CTE/ 1.0 MTH B</th>
<th>EST. FEES: $150</th>
</tr>
</thead>
</table>

- **Prerequisites:** General Aircraft Maintenance I & II; Airframe I is recommended
- **Concurrent Enrollment:** N/A
- **Certifications:** N/A
- **Course Topics:** In Airframe II & III, students will continue or start their study of Airframe Maintenance. Topics include aircraft sheet metal, electrical systems, hydraulic and pneumatic power systems, fuel systems, water and waste systems, and landing systems. The FAA requires 750 total hours for Airframe Maintenance. This year-long course provides 492 of those hours.

### AIRFRAME IV (SUMMER)

<table>
<thead>
<tr>
<th>GRADES: 12</th>
<th>LENGTH: 7.5 hrs/day, 20 days</th>
<th>CREDITS: 0.5 CTE/ 0.5 PHY SCI</th>
<th>EST. FEES: $100</th>
</tr>
</thead>
</table>

- **Prerequisites:** General Aircraft Maintenance I & II, Airframe I, II, & III
- **Concurrent Enrollment:** N/A
- **Certifications:** N/A
- **Course Topics:** This course is the conclusion of Airframe Maintenance and the remaining 750 hours required by the FAA prior to testing. Topics for the class include instrument systems, communication and navigation systems, and inspection processes.